

WHAT IS CLAIMED IS:

1. An adaptor for use with a urinary catheter having a urine lumen extending between a bladder end and a discharge end, a normally closed valve associated with said urine lumen and having a downstream side communicating with said discharge end, the adaptor for holding the valve in an open state comprising:

a fluid tube sized to sealingly engage said discharge end of said urinary catheter in fluid communication with said downstream side of said valve, and an internal diameter sized for urine to flow therethrough;

a member associated with the fluid tube and having an external dimension sized to allow urine to flow therearound and into the fluid tube, the member adapted to engage said valve from said downstream side thereof when the fluid tube is in sealing engagement with said discharge end and to hold said valve open while the fluid tube is sealingly engaged with said discharge end such that urine is to pass through said valve and through the fluid tube.

2. The adaptor of claim 1, wherein said discharge end of said urinary catheter is tubular and extends downstream from said valve, the fluid tube of the adaptor being sized to engage within said tubular discharge end to thereby sealingly engage therewith.

3. The adaptor of claim 2, further comprising:

a releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said discharge end.

5 4. The adaptor of claim 3, wherein the releasable clip includes a region adapted to pinch a portion of said tubular discharge end between the releasable clip and a portion of the fluid tube engaged within said tubular discharge end.

10 5. The adaptor of claim 4, wherein a part of the region, which is in contact with said tubular discharge end, has a contour substantially similar to a contour of said tubular discharge end.

6. The adaptor of claim 1, the member being rod-shaped.

15 7. The adaptor of claim 1, the member being solid in cross-section.

8. The adaptor of claim 1, the member being hollow in cross-section such that urine also flows therethrough.

9. The adaptor of claim 1, further comprising:

a releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said discharge end.

5 10. The adaptor of claim 9, wherein the releasable clip further includes:

a first portion adapted to selectively urge an inner surface of said discharge end against the fluid tube.

10 11. The adaptor of claim 10, wherein the releasable clip further includes:

a first resilient leg and a second resilient leg with the fluid tube disposed therebetween; and

a flange on the first resilient leg adapted to releasably lock with a detent on the second resilient leg when the legs are urged towards one another.

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12. The adaptor of claim 11, wherein:

the first resilient leg includes a first pinch rib adapted to selectively urge a first region of said discharge end against the fluid tube; and

the second resilient leg includes a second pinch rib adapted to selectively
20 urge a second region of said discharge end against the fluid tube.

13. The adaptor of claim 11, wherein:

the first resilient leg includes a safety rib adapted to prevent the first resilient leg from being urged against the fluid tube more than a predetermined amount.

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14. The adaptor of claim 1, further comprising:

a protuberance positioned to butt up against a portion of said urinary catheter when the member engages said downstream side of said valve thereby preventing the member from being further inserted into said valve.

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15. The adaptor of claim 14, wherein:

the protuberance is located on a releasable clip, the releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said discharge end.

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16. The adaptor of claim 1, wherein the member is sized to pass through said valve.

17. The adaptor of claim 1, wherein the member extends beyond the fluid tube.

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18. An adaptor for use with a urinary catheter having a urine lumen extending between a bladder end and a discharge end, a normally closed valve associated with said urine lumen and having a downstream side communicating with said discharge end, the adaptor for holding the valve in an open state comprising:

a fluid tube sized to sealingly engage said discharge end of said urinary catheter in fluid communication with said downstream side of said valve, and an internal diameter sized for urine to flow therethrough;

a member extending beyond the fluid tube and having an external dimension sized to allow urine to flow therearound and into the fluid tube, the member adapted to engage said valve from said downstream side thereof when the fluid tube is in sealing engagement with said discharge end and to hold said valve open while the fluid tube is sealingly engaged with said discharge end such that urine is to pass through said valve and through the fluid tube.

19. The adaptor of claim 18, wherein said discharge end of said urinary catheter is tubular and extends downstream from said valve, the fluid tube of the adaptor being sized to engage within said tubular discharge end to thereby sealingly engage therewith.

20. The adaptor of claim 19, further comprising:

a releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said discharge end.

5 21. The adaptor of claim 20, wherein the releasable clip includes a region adapted to pinch a portion of said tubular discharge end between the releasable clip and a portion of the fluid tube engaged within said tubular discharge end.

10 22. The adaptor of claim 21, wherein a part of the region, which is in contact with said tubular discharge end, has a contour substantially similar to a contour of said tubular discharge end.

23. The adaptor of claim 18, the member being rod-shaped.

15 24. The adaptor of claim 18, the member being solid in cross-section.

25. The adaptor of claim 18, the member being hollow in cross-section such that urine also flows therethrough.

26. The adaptor of claim 18, further comprising:

a releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said discharge end.

5 27. The adaptor of claim 26, wherein the releasable clip further includes:

a first portion adapted to selectively urge an inner surface of said discharge end against the fluid tube.

28. The adaptor of claim 27, wherein the releasable clip further includes:

10 a first resilient leg and a second resilient leg with the fluid tube disposed therebetween; and

a flange on the first resilient leg adapted to releasably lock with a detent on the second resilient leg, when the legs are urged towards one another.

15 29. The adaptor of claim 28, wherein:

the first resilient leg includes a first pinch rib adapted to selectively urge a first region of said discharge end against the fluid tube; and

the second resilient leg includes a second pinch rib adapted to urge a second region of said discharge end against the fluid tube.

30. The adaptor of claim 28, wherein:

the first resilient leg includes a safety rib adapted to prevent the first resilient leg from being urged against the fluid tube more than a predetermined amount.

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31. The adaptor of claim 28, further comprising:

a protuberance positioned to butt up against a portion of said urinary catheter when the member engages said downstream side of said valve thereby preventing the member from being further inserted into said valve.

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32. The adaptor of claim 31, wherein:

the protuberance is located on a releasable clip, the releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said discharge end.

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33. The adaptor of claim 18, wherein said member is sized to pass through said valve.

34. An adaptor for use with a fluid catheter having a lumen extending between an upstream end and a downstream end, a normally closed valve associated with said fluid lumen and having a downstream side communicating with said downstream end, the adaptor for holding the valve in an open state comprising:

a fluid tube sized to sealingly engage said downstream end of said fluid catheter in fluid communication with said downstream side of said valve, and an internal diameter sized for fluid to flow therethrough;

a member associated with the fluid tube and having an external dimension sized to allow fluid to flow therearound and into the fluid tube, the member adapted to engage said valve from said downstream side thereof when the fluid tube is in sealing engagement with said downstream end and to hold said valve open while the fluid tube is sealingly engaged with said downstream end such that fluid is to pass through said valve and through the fluid tube.

35. The adaptor of claim 34, wherein said downstream end of said fluid catheter is tubular and extends downstream from said valve, the fluid tube of the adaptor being sized to engage within said tubular downstream end to thereby sealingly engage therewith.

36. The adaptor of claim 34, the member being solid in cross-section.

37. The adaptor of claim 34, the member being hollow in cross-section such that fluid also flows therethrough.

38. The adaptor of claim 34, further comprising:

5 a releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said downstream end.

39. The adaptor of claim 34, further comprising:

10 a protuberance positioned to butt up against a portion of said fluid catheter when the member engages said downstream side of said valve thereby preventing the member from being further inserted into said valve.

40 The adaptor of claim 34, wherein the member is sized to pass through said valve.

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41. The adaptor of claim 34, wherein the member extends beyond the fluid tube.

42. An adaptor for use with a fluid catheter having a lumen extending between an upstream end and a downstream end, a normally closed valve associated with said fluid lumen and having a downstream side communicating with said downstream end, the adaptor for holding the valve in an open state comprising:

a fluid tube sized to sealingly engage said downstream end of said fluid catheter in fluid communication with said downstream side of said valve, and an internal diameter sized for fluid to flow therethrough;

a member extending beyond the fluid tube and having an external dimension sized to allow fluid to flow therearound and into the fluid tube, the member adapted to engage said valve from said downstream side thereof when the fluid tube is in sealing engagement with said downstream end and to hold said valve open while the fluid tube is sealingly engaged with said downstream end such that fluid is to pass through said valve and through the fluid tube.

43. The adaptor of claim 42, wherein said downstream end of said fluid catheter is tubular and extends downstream from said valve, the fluid tube of the adaptor being sized to engage within said tubular downstream end to thereby sealingly engage therewith.

44. The adaptor of claim 42, the member being solid in cross-section.

45. The adaptor of claim 42, the member being hollow in cross-section such that fluid also flows therethrough.

46. The adaptor of claim 42, further comprising:

5 a releasable clip adapted to selectively secure the fluid tube in said sealing engagement with said downstream end.

47. The adaptor of claim 42, further comprising:

10 a protuberance positioned to butt up against a portion of said fluid catheter when the member engages said downstream side of said valve thereby preventing the member from being further inserted into said valve.

48. The adaptor of claim 42, wherein the member is sized to pass through said valve.

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49. An adaptor for use with a urinary catheter having a urine lumen extending between a bladder end and a discharge end, a normally-closed valve associated with said urine lumen and having a downstream side communicating with said discharge end, the adaptor for holding the valve in an open state comprising:

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 a fluid tube sized to sealingly engage said discharge end of said urinary catheter for urine flow therethrough; and

a releasable clip external to the fluid tube adapted to selectively secure the fluid tube in said sealing engagement with said discharge end.

50. The adaptor of claim 49, wherein the releasable clip further includes:

5 a first portion adapted to selectively urge a portion of the discharge end against the fluid tube.

51. The adaptor of claim 50, wherein said releasable clip further includes:

10 a first resilient leg and a second resilient leg with the fluid tube disposed therebetween; and

a flange on the first resilient leg adapted to releasably lock with a detent on the second resilient leg, when the legs are urged towards one another.

52. The adaptor of claim 51, wherein:

15 the first resilient leg includes a first pinch rib adapted to selectively urge a first region of said discharge end against the fluid tube; and

the second resilient leg includes a second pinch rib adapted to selectively urge a second region of said discharge end against the fluid tube.

53. The adaptor of claim 49, wherein the adaptor further includes:

a member having an external dimension sized to allow urine to flow therearound and into the fluid tube, the member adapted to engage said downstream side of said valve when the fluid tube is in sealing engagement with said discharge end and hold said valve open by internal actuation while the fluid tube is sealingly engaged with said discharge end such that urine is to pass through said valve and through the fluid tube.

54. The adaptor of claim 53, wherein the releasable clip further includes:

a protuberance positioned to butt up against a portion of said urinary catheter when the member engages said downstream side of said valve thereby preventing the member from being further inserted into said valve.

55. The adaptor of claim 49, wherein the fluid tube has an external diameter sized to fit within said discharge end of said urinary catheter in fluid communication with said downstream side of said valve, and an internal diameter sized for urine to flow therethrough.

56. An adaptor comprising:

a fluid tube, the fluid tube having a downstream end and an upstream end;

a valve opening member associated with the fluid tube; and

a clip fixedly coupled with the fluid tube; the clip having a first resilient leg with a first opening through which the valve opening member extends, and a second resilient leg with a second opening accommodating said downstream end, and the first resilient leg and the second resilient leg positioned with the fluid tube disposed therebetween.

57. The adaptor of claim 56 further comprising a safety rib on the second resilient leg and extending towards the fluid tube, the safety rib being adapted to prevent the second resilient leg from being urged against the fluid tube more than a predetermined amount.

58. The adaptor of claim 56 further comprising a resilient rib on one of the resilient legs and extending towards the fluid tube, the resilient rib being adapted to communicate with the fluid tube when the clip is in a closed position.

59. The adaptor of claim 58, the resilient rib being disposed at an angle.

60. The adaptor of claim 56, wherein the valve opening member extends beyond the fluid tube upstream therefrom.

61. An adaptor comprising:

a fluid tube, the fluid tube having a downstream end and an upstream end;

a valve opening member extending beyond the fluid tube upstream therefrom; and

a clip fixedly coupled with the fluid tube; the clip having a first resilient leg with a first opening through which the valve opening member extends, and a second resilient leg with a second opening accommodating said downstream end, and the first resilient leg and the second resilient leg positioned with the fluid tube disposed therebetween.

62. The adaptor of claim 61 further comprising a safety rib on the second resilient leg and extending towards the fluid tube, the safety rib being adapted to prevent the second resilient leg from being urged against the fluid tube more than a predetermined amount.

63. The adaptor of claim 61 further comprising a resilient rib on one of the resilient legs and extending towards the fluid tube, the resilient rib being adapted to communicate with the fluid tube when the clip is in a closed position.

64. The adaptor of claim 63, the resilient rib being disposed at an angle.

65. A catheter arrangement comprising:

a catheter comprising a fluid lumen extending between an upstream end and a downstream end, a normally-closed valve associated with said fluid lumen and having a downstream side in communication with said downstream end,
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an adaptor, comprising:

a fluid tube sized to sealingly engage the downstream end of the catheter in fluid communication with the downstream side of the valve for fluid to flow therethrough;

10 a member associated with the fluid tube and having an external dimension sized to allow fluid to flow therearound and into the fluid tube, the member adapted to engage the valve from the downstream side thereof when the fluid tube is in sealing engagement with the downstream end of the catheter and to hold the valve open while the fluid tube is sealingly engaged with the
15 downstream end such that fluid is to pass through the valve and through the fluid tube.

66. The arrangement according to claim 65, wherein the valve includes a duck-bill valve.

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67. The arrangement according to claim 66, wherein the member further includes:

a rod having a major axis substantially aligned with a major axis of the downstream end of the fluid lumen and is positioned within the duck-bill valve, when the member engages the valve, so as to form a respective open region on each side of the rod bounded by the duck-bill valve.

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68. The arrangement according to claim 67, wherein a combined cross-sectional area of the respective open regions is larger than a cross-sectional area of the rod.

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69. The arrangement according to claim 67, wherein the rod comprises a hollow central region along its major axis whereby fluid flows out of the catheter through the hollow central region.

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70. The arrangement according to claim 65, wherein the member extends upstream beyond the fluid tube.

71. A catheter arrangement comprising:

a catheter comprising a fluid lumen extending between an upstream end and a downstream end, a normally-closed valve associated with said fluid lumen and having a downstream side in communication with said downstream end, and

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an adaptor, comprising:

a fluid tube sized to sealingly engage the downstream end of the catheter in fluid communication with the downstream side of the valve for fluid to flow therethrough;

5 a member extending beyond the fluid tube upstream therefrom and having an external dimension sized to allow fluid to flow therearound and into the fluid tube, the member adapted to engage the valve from the downstream side thereof when the fluid tube is in sealing engagement with the downstream end of the catheter and to hold the valve open while the fluid tube is sealingly engaged with the downstream end such that fluid is to pass through
10 the valve and through the fluid tube.

72. The arrangement according to claim 70, wherein the valve includes a duck-bill valve.

15 73. The arrangement according to claim 72, wherein the member further includes:

a rod having a major axis substantially aligned with a major axis of the downstream end of the fluid lumen and is positioned within the duck-bill valve, when the member engages the valve, so as to form a respective open region on
20 each side of the rod bounded by the duck-bill valve.

74. The arrangement according to claim 73, wherein a combined cross-sectional area of the respective open regions is larger than a cross-sectional area of the rod.

5 75. The arrangement according to claim 73, wherein the rod comprises a hollow central region along its major axis whereby fluid flows out of the catheter through the hollow central region.

76. A method for continuously discharging fluid from a catheter having a normally-closed valve, the method comprising:

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inserting an adaptor within an outlet of the catheter to form a seal between the outlet and a first portion of the adaptor; and

holding said valve open with a second portion of the adaptor, said second portion upstream of the first portion and positioned in a non-sealing arrangement with the valve and having an external dimension sized to allow fluid to flow therearound and into the first portion.

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77. The method according to claim 76, wherein said second portion comprises a rod having an outside diameter smaller than an inside diameter of the valve.

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78. The method according to claim 76, further comprising preventing inserting of the adaptor more than a predetermined distance.

79. The method according to claim 76, further comprising releasably locking the adaptor to the catheter.

80. The method according to claim 76, wherein the outlet further includes a discharge tube of the catheter.

81. A method for continuously discharging fluid from a catheter having a normally-closed valve, the method comprising:

engaging an outlet of the catheter with an adaptor to form a seal between the outlet and a first portion of the adaptor; and

holding said valve open with a second portion of said adaptor, said second portion positioned in a non-sealing arrangement with said valve and having an external dimension sized to allow fluid to flow therearound and into the first portion.

82. The method according to claim 81, wherein the second portion comprises a rod having an outside diameter smaller than an inside diameter of the valve.

83. The method according to claim 81 further comprising preventing inserting of the adaptor more than a predetermined distance.

5 84. The method according to claim 81 further comprising releasably locking the adaptor to the catheter.

85. The method according to claim 81, wherein the outlet comprises a discharge tube of the catheter.

10 86. The method according to claim 81, wherein engaging includes inserting the adaptor within the outlet of the catheter to form a seal between the outlet and the first portion of the adaptor.